

What is claimed is:

1. A method of determining the risk for calcification of arteries and other soft tissues in a mammal, said method comprising:

5 detecting the level of a fetuin-mineral complex in blood from said mammal, wherein an increased level of fetuin mineral complex as compared to that found in a control indicates that said mammal is at increased risk for calcification of arteries and other soft tissues.

2. The method of claim 1, wherein said arteries and other soft tissues is arteries.

10 3. The method of claim 1, wherein said mammal is a non-human mammal.

4. The method of claim 1, wherein said mammal is a human.

15 5. The method of claim 1, wherein said control is a blood sample from the same species of mammal where said same species of mammal is a normal healthy mammal.

6. The method of claim 1, wherein said detecting comprises detecting the amount of fetuin comprising a sample of a fetuin mineral complex.

7. The method of claim 1, wherein said detecting comprises detecting the amount of matrix Gla protein comprising a sample of a fetuin mineral complex.

20 8. The method of claim 1, wherein said detecting comprises detecting the amount of secreted phosphoprotein 24 comprising a sample of a fetuin mineral complex.

9. The method of claim 1, wherein said detecting comprises detecting the amount of platelet factor 4 comprising a sample of a fetuin mineral complex.

25 10. The method of claim 1, wherein said detecting comprises detecting the amount of calcium comprising a sample of a fetuin mineral complex.

11. The method of claim 1, wherein said detecting comprises detecting the amount of phosphate comprising a sample of a fetuin mineral complex.

12. The method of claim 1, wherein said detecting comprises detecting the amount of a mineral phase comprising a sample of a fetuin mineral complex.

5 13. A method of screening for an agent that reduces or ameliorates one or more symptoms of the calcification of arteries and other soft tissues, said method comprising:

administering a test agent to a mammal;

10 detecting the level of a fetuin-mineral complex in blood from said mammal, wherein a decreased level of fetuin mineral complex as compared to that found in a control indicates that said test agent reduces or ameliorates one or more symptoms of arterial calcification.

15 14. The method of claim 13, wherein said one or more symptoms of the calcification of arteries and other soft tissues is one or more symptoms of arterial calcification.

15 15. The method of claim 13, wherein said control is blood from said mammal obtained before administration of said test agent.

16. The method of claim 13, wherein said control is blood from said mammal obtained at an earlier time point in the course of administration of said test agent.

20 17. The method of claim 13, wherein said control is a predetermined concentration of a fetuin-mineral complex.

18. The method of claim 13, wherein said mammal is a non-human mammal.

25 19. The method of claim 13, wherein said test agent is a bone resorption inhibitor.

20. The method of claim 13, wherein said detecting comprises detecting the amount of fetuin comprising a sample of a fetuin mineral complex.

21. The method of claim 13, wherein said detecting comprises detecting the amount of matrix Gla protein comprising a sample of a fetuin mineral complex.

22. A method of monitoring the efficacy of a treatment for one or more symptoms of the calcification of arteries and other soft tissues in a mammal, said method comprising:

detecting the level of a fetuin-mineral complex in blood from said mammal at one or more times during or after the course of said treatment, wherein a decreased level of fetuin mineral complex as compared to that found in a control indicates that said treatment reduces or ameliorates one or more symptoms of artery and soft tissue calcification.

23. The method of claim 22, wherein said control is blood from said mammal obtained before said treatment.

24. The method of claim 22, wherein said control is blood from said mammal obtained at an earlier time point in the course of said treatment.

25. The method of claim 22, wherein said control is a predetermined concentration of a fetuin-mineral complex.

26. The method of claim 22, wherein said detecting comprises detecting the amount of fetuin comprising a sample of a fetuin mineral complex.

27. The method of claim 22, wherein said detecting comprises detecting the amount of matrix Gla protein comprising a sample of a fetuin mineral complex.

28. The method of claim 22, wherein said detecting comprises detecting the amount of secreted phosphoprotein 24 comprising a sample of a fetuin mineral complex.

29. The method of claim 22, wherein said detecting comprises detecting the amount of platelet factor 4 comprising a sample of a fetuin mineral complex.

30. The method of claim 22 wherein said detecting comprises detecting the amount of calcium comprising a sample of a fetuin mineral complex.

31. The method of claim 22, wherein said detecting comprises detecting the amount of phosphate comprising a sample of a fetuin mineral complex.

32. The method of claim 22, wherein said detecting comprises detecting the amount of a mineral phase comprising a sample of a fetuin mineral complex.

5 33. A method of determining the risk for atherosclerosis in a mammal, said method comprising:

detecting the level of a fetuin-mineral complex in blood from said mammal, wherein an increased level of fetuin mineral complex as compared to that found in a control indicates that said mammal is at increased risk for atherosclerosis.

10 34. The method of claim 33, wherein said mammal is a non-human mammal.

35. The method of claim 33, wherein said mammal is a human.

15 36. The method of claim 33, wherein said control is a blood sample from the same species of mammal where said same species of mammal is a normal healthy mammal.

37. The method of claim 33, wherein said detecting comprises detecting the amount of fetuin comprising a sample of a fetuin mineral complex.

38. The method of claim 33, wherein said detecting comprises detecting the amount of matrix Gla protein comprising a sample of a fetuin mineral complex.

20 39. The method of claim 33, wherein said detecting comprises detecting the amount of secreted phosphoprotein 24 comprising a sample of a fetuin mineral complex.

40. The method of claim 33, wherein said detecting comprises detecting the amount of platelet factor 4 comprising a sample of a fetuin mineral complex.

25 41. The method of claim 33, wherein said detecting comprises detecting the amount of calcium comprising a sample of a fetuin mineral complex.

42. The method of claim 33, wherein said detecting comprises detecting the amount of phosphate comprising a sample of a fetuin mineral complex.

43. The method of claim 33, wherein said detecting comprises detecting the amount of a mineral phase comprising a sample of a fetuin mineral complex.

5 44. A method of monitoring the efficacy of a treatment for one or more symptoms of atherosclerosis in a mammal, said method comprising:

detecting the level of a fetuin-mineral complex in blood from said mammal at one or more times during or after the course of said treatment, wherein a decreased level of fetuin mineral complex as compared to that found in a control indicates
10 that said treatment reduces or ameliorates one or more symptoms of atherosclerosis.

45. The method of claim 44, wherein said control is blood from said mammal obtained before said treatment.

46. The method of claim 44, wherein said control is blood from said mammal obtained at an earlier time point in the course of said treatment.

15 47. The method of claim 44, wherein said control is a predetermined concentration of a fetuin-mineral complex.

48. The method of claim 44, wherein said detecting comprises detecting the amount of fetuin comprising a sample of a fetuin mineral complex.

49. The method of claim 44, wherein said detecting comprises detecting
20 the amount of matrix Gla protein comprising a sample of a fetuin mineral complex.

50. The method of claim 44, wherein said detecting comprises detecting the amount of secreted phosphoprotein 24 comprising a sample of a fetuin mineral complex.

51. The method of claim 44, wherein said detecting comprises detecting the amount of platelet factor 4 comprising a sample of a fetuin mineral complex.

25 52. The method of claim 44, wherein said detecting comprises detecting the amount of calcium comprising a sample of a fetuin mineral complex.

53. The method of claim 44, wherein said detecting comprises detecting the amount of phosphate comprising a sample of a fetuin mineral complex.

54. The method of claim 44, wherein said detecting comprises detecting the amount of a mineral phase comprising a sample of a fetuin mineral complex.

5 55. A method of determining the risk for osteoporosis in a mammal, said method comprising:

detecting the level of a fetuin-mineral complex in blood from said mammal, wherein an increased level of fetuin mineral complex as compared to that found in a control indicates that said mammal is at increased risk for osteoporosis.

10 56. The method of claim 55, wherein said mammal is a non-human mammal.

57. The method of claim 55, wherein said mammal is a human.

15 58. The method of claim 55, wherein said control is a blood sample from the same species of mammal where said same species of mammal is a normal healthy mammal without evidence of an abnormal rate of bone loss.

59. The method of claim 55, wherein said detecting comprises detecting the amount of fetuin comprising a sample of a fetuin mineral complex.

60. The method of claim 55, wherein said detecting comprises detecting the amount of matrix Gla protein comprising a sample of a fetuin mineral complex.

20 61. The method of claim 55, wherein said detecting comprises detecting the amount of secreted phosphoprotein 24 comprising a sample of a fetuin mineral complex.

The method of claim 55, wherein said detecting comprises detecting the amount of platelet factor 4 comprising a sample of a fetuin mineral complex.

25 62. The method of claim 55, wherein said detecting comprises detecting the amount of calcium comprising a sample of a fetuin mineral complex.

63. The method of claim 55, wherein said detecting comprises detecting the amount of phosphate comprising a sample of a fetuin mineral complex.

64. The method of claim 55, wherein said detecting comprises detecting the amount of a mineral phase comprising a sample of a fetuin mineral complex.

5 65. A method of monitoring the efficacy of a treatment of osteoporosis, said method comprising:

detecting the level of a fetuin-mineral complex in blood from said mammal at one or more times during or after the course of said treatment, wherein a decreased level of fetuin mineral complex as compared to that found in a control indicates
10 that said treatment reduces or ameliorates one or more symptoms of osteoporosis.

66. The method of claim 65, wherein said control is blood from said mammal obtained before said treatment.

67. The method of claim 65, wherein said control is blood from said mammal obtained at an earlier time point in the course of said treatment.

15 68. The method of claim 65, wherein said control is a predetermined concentration of a fetuin-mineral complex.

69. The method of claim 65, wherein said detecting comprises detecting the amount of fetuin comprising a sample of a fetuin mineral complex.

20 70. The method of claim 65, wherein said detecting comprises detecting the amount of matrix Gla protein comprising a sample of a fetuin mineral complex.

71. The method of claim 65, wherein said detecting comprises detecting the amount of secreted phosphoprotein 24 comprising a sample of a fetuin mineral complex.

72. The method of claim 65, wherein said detecting comprises detecting the amount of platelet factor 4 comprising a sample of a fetuin mineral complex.

25 73. The method of claim 65, wherein said detecting comprises detecting the amount of calcium comprising a sample of a fetuin mineral complex.

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74. The method of claim 65, wherein said detecting comprises detecting the amount of phosphate comprising a sample of a fetuin mineral complex.

75. The method of claim 65, wherein said detecting comprises detecting the amount of a mineral phase comprising a sample of a fetuin mineral complex.